Defining the State-of-the-Art in Biomedical Imaging: Research Needs for the Future

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Director

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Broad Mission of the NIBIB

Improve health by supporting the development and translation of emerging technologies and methods that enable fundamental discoveries and facilitate disease detection, management, and prevention. This involves supporting and conducting focused and multi-disciplinary research and research training with collaborations between the quantitative and biological sciences.

Research Focus Areas - Futures Workshop

1. New Imaging Modalities & Instruments
2. Biosensors & Probes
3. Optical Technologies
4. Systems Approaches/Eng/Integration
5. Cellular/Molecular Imaging
6. Imaged-Guided Interventions
7. Prosthetics/Artificial Organs
8. Regenerative Medicine
9. Computational Biology & Predictive Models
10. Minimally-Invasive Technologies

NIBIB Research Focus Areas

- Biomedical Imaging – Cellular/molecular levels, image-guided interventions / therapies, imaging informatics, genomics / molecular profiling
- Biomaterials – Tissue engineering, devices, prosthetics
- Nanotechnology and Microtechnology – NEMS, MEMS, targeted drug delivery, probes
- Sensors - Detectors, transducers, actuators, remote sensors
- Computer Applications – Modeling, robotics, computer-assisted surgery, bioinformatics

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Biomedical Imaging Workshop Focus Areas

- Sensors and Sources
- Targeted Agents
- Data Reconstruction, Interpretation, and Informatics
- Data Evaluation and Objective Assessment
- Emerging Technologies and Applications

Charge to Participants

How can Biomedical Imaging have the maximum positive impact on health care ?

- What are the major opportunities
- What are the obstacles / research needs for each of the topic areas.

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Key Test / Guiding Principle: Does new technology or application result in a discovery or advancement that otherwise would not have been possible.

Planning Committee
October 28, 2002

- Dr. Harrison Barrett
- Dr. Stanley Baum
- Dr. Bruce Davis
- Dr. Maryellen Giger
- Dr. Philip Grieve
- Dr. Robert Gillies
- Dr. Gary Glazer
- Dr. William Hendee
- Dr. Ronald Price
- Dr. Robert Ryan
- Dr. Kirby Vosburgh

NIBIB Attendees

- Dr. Donna Dean
- Ms. Colleen Guay-Broder
- Dr. John Haller
- Dr. William Heetderks
- Dr. Peter Kirchner
- Dr. Mary Pastel
- Ms. Mariaileen “Mollie” Sourwine
- Dr. Richard Swaja

“ It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow”

- Robert Goddard

Rocket Scientist

“ History has taught us that striving for the impossible is a necessary precondition for achieving the possible “

- Webber

Philosopher

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